

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A bioreactor for the treatment of contaminated communal or industrial effluent, or of fluids contaminated with organic pollutants, in particular for a small-scale sewage treatment plant, wherein microorganisms for decomposing organic pollutants are contained, characterized by a container (22) including at least one recess (26) for the passage of the effluent to be treated, inside of which a filler body (30) having a large pore volume as well as a microbiotic mixture, preferably comprising a proportion of photosynthetically active microorganisms and a proportion of light-emitting microorganisms, is provided.

2. (Currently Amended) The bioreactor in accordance with claim 1, wherein the filler body (30) has a spiral shape.

3. (Currently Amended) The bioreactor in accordance with claim 2, wherein the diameter of the spiral-shaped filler body (30) axially increases towards the liquid surface.

4. (Currently Amended) The bioreactor in accordance with claim 1, wherein the filler body (30) comprises a supporting layer on which a foam material is applied.

5. (Currently Amended) The bioreactor in accordance with claim 1, wherein the filler body (30) has a preferably grid-shaped, double wall wherebetween a foam material is arranged.

6. (Previously Presented) The bioreactor in accordance with claim 1, wherein the filler body consists of a ceramic material having a large pore volume.

7. (Previously Presented) The bioreactor in accordance with claim 4, wherein the foam material, preferably PU foam, is provided with a catalytically active surface, for example with activated charcoal or the like.

8. (Currently Amended) The bioreactor in accordance with claim 7, wherein microorganisms are applied on a surface of the filler body-(30), or the microorganisms are centrally introduced inside the strainer basket-(22).

9. (Original) The bioreactor in accordance with claim 8, wherein the microorganisms are received in a carrier substance, e.g., quitosane or a biopolymer, for example lactic acid polymer.

10. (Original) The bioreactor in accordance with claim 9, wherein the microbiotic mixture further contains nanoparticles in addition to the microorganisms.

11. (Currently Amended) The bioreactor in accordance with claim 7, wherein the filler body-(30)-is provided with the microbiotic mixture on the one hand and with a layer favoring formation of a biofilm, e.g., with activated charcoal, on the other hand.

12. (Currently Amended) The bioreactor in accordance with claim 2, wherein the container walls (36) and/or surface areas of the filler body (30) are coated with a photocatalytically active layer.

13. (Original) The bioreactor in accordance with claim 10, wherein the layer is titanium dioxide or indium-tin oxide.

14. (Currently Amended) The bioreactor in accordance with claim 12, wherein the photocatalytic layer is applied largely continuously on the inner circumferential surface of the container (22) and in portions on the outer circumferential surface.

15. (Original) The bioreactor in accordance with claim 14, wherein the photocatalytic layer on the outer circumferential surface is applied in the form of stripes, wherein these preferably extend in the longitudinal direction.

16. (Currently Amended) The bioreactor in accordance with claim 1, wherein recesses (26) of the container (22) are punched out, so that punching burrs (52) project inwardly, and the photocatalytic coating (32) is applied following punching.

17. (Currently Amended) The bioreactor in accordance with claim 1, wherein the container (22) has a cylindrical shape and is provided on the end sides with at least one recess for the passage of liquid.

18. (Currently Amended) The bioreactor in accordance with claim 1, wherein the container (22) or the filler body is mounted rotatably.

19. (Original) Microbiotic mixed culture for the decomposition of organic constituents in fluids, in particular for use in a bioreactor in accordance with any one of the preceding claims, comprising a proportion of photosynthetically active microorganisms and a proportion of light-emitting microorganisms in a biological solution, characterized in that the mixed culture contains a proportion of piezoelectrically active nano-composite materials, the surface of which is provided with a photocatalytically active layer.

20. (Original) A mixed culture in accordance with claim 19, wherein the nano-composite material has a fiber-type structure with a length of 20 to 100 nm and a diameter of 2 to 10 nm.

21. (Previously Presented) The mixed culture in accordance with claim 19, wherein the coating contains titanium dioxide or indium-tin oxide.

22. (Previously Presented) The mixed culture in accordance with claim 19, wherein the coating of the nano-composite materials is provided with multiple recesses for the formation of pole sites.

23. (Currently Amended) The mixed culture in accordance with claim 20, wherein the coating of the nano-composite particles is interrupted at the end sides, and a respective (60, 62) pole is formed at the two end sides.

24. (Currently Amended) A retrofit kit for a small-scale sewage treatment plant, comprising;

a bioreactor (2) for the treatment of contaminated communal or industrial effluent, or of fluids contaminated with organic pollutants, in particular for the small-scale sewage treatment plant, wherein microorganisms for decomposing organic pollutants are contained, characterized by a container (22) including at least one recess (26) for the passage of the effluent to be treated, inside of which a filler body (30) having a large pore volume as well as a microbiotic mixture, preferably comprising a proportion of photosynthetically active microorganisms and a proportion of light-emitting microorganisms, is provided; and the microbiotic mixed culture in accordance with claim 19.